

PROCRUS (OLIGIA) (MIANA) LITEROSA, AB. OBSCURA, NOV. AB.

By A. J. WIGHTMAN, F.R.E.S.

In the collection of the late Frederic Pennington, recently disposed of by auction, there was an extreme ab. of *P. literosa* included among the *P. strigilis* and *P. latruncula*, which were mixed.

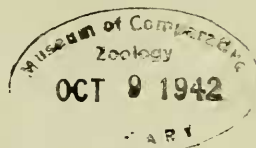
It appears almost black, but with a deep purple tinge, seen to advantage when viewed at an oblique angle.

Critical examination reveals the markings of *literosa* as dark red, and it is beyond question a very dark form of that species.

Both British and Continental authors consider *P. literosa* as the least variable species in the group, and no one has named or described such an aberration, except Barrett, who, on page 8, vol. v, records such a specimen. I call it ab. **obscura**. It was taken at Cranleigh in Surrey, and is in bred condition. It is now in my collection. Incidentally, I find the larva of this species feeding in stems of winter wheat, where the fields are bordered with wide verges of grass, at the foot of the South Downs.

Aurago," Pulborough, Sussex.

13,820



VARIATION IN EUMICHTIS LICHENEA, HBN.

By P. SIVITER SMITH.

I have already recorded a note about this species [*Ent. Rec.*, vol. xlv, pp. 12-13, January 1933], but until now I have had no opportunity of putting on record notes on the variation of the series I took and of one or two others I possess. I bred a number from larvae obtained on several occasions feeding on Thrift near Newquay, North Cornwall, and therefore almost every specimen referred to is fresh. The insects are liable to fade a little.

The species seems to have received little attention and to be regarded as a stable one, but I find it very variable and it is not always easy to match specimens. Great changes of colour and pattern are to be found.

Tutt [*Var. Brit. Noctuae*, vol. iii, p. 52, 1892] describes the type form as follows: "Hubner's type may be thus described:—♂. The ground colour dark green, suffused with red; two basal reddish-ochreous lines; the stigmata outlined in red; a dusky angulated line beyond the reniform, followed by pink lunules, and a white subterminal line; outer margin green. Hindwings white, with a dark shade and dark line parallel to hind margin, dusky lunule. ♀. Markings and colour as in ♂, but more distinct, hindwings greyer." (*Sammlung europ. Schmet.*, etc., figs. 562-563)."

Speaking generally of the typical form, variation in the amount of the pinkish or reddish suffusion runs from a distinctly noticeable colour to just a trace of pink scales. The stigmata vary in colour and distinctness and the markings in clarity. The markings of the ♀♀ are not usually so clear as those of the ♂♂ (although Tutt, *loc. cit.* above, says the markings of the ♀ are the more distinct, but I do not find it so), and I possess four ♀♀ with the hindwings whitish as in the ♂ and

not the usual brown colour. Both ♂♂ and ♀♀ are variable and in similar directions.

I find that sometimes the ground colour is more a steely blue-green than dark green, or rarely a very dark olive-green.

Tutt (*loc. cit.* above) describes the stigmata as "outlined in red." In no case do my specimens have a complete outline in red or pink; the reniform is usually partially whitish, suffused anteriorly with pinkish and posteriorly with ochreous. Only rarely are there traces of pink on the posterior edge of the reniform but it is not so unusual for ochreous to replace pink on the anterior edge, or for the reniform to be outlined wholly in whitish, or to be almost wholly ochreous. It usually has a dark or mixed centre.

The reniform may be very obscure or (rarely) hardly traceable, or it may run to a wholly whitish blotch; the posterior outline may be interrupted by a blackish, dark green, ochreous, or greyish bar, or wedge, which may sometimes extend to form a dark centre. It is very variable in shape.

The orbicular is usually less conspicuous than the reniform; there is usually an obvious dark centre and although this may be greatly reduced, a trace of it always remains. It can be wholly pinkish, ochreous, greyish or whitish, or a mixture of these colours; it usually has a dark edging. Rarely it is exceedingly obscure, almost obsolete.

The claviform may run from complete obsolescence to a blackish wedge; both these extremes are rare. It is usually a half-oval outline or part of one.

There can be up to six obscure or well-defined white or pale marks along the costa, usually associated with clearly marked specimens.

The dark markings on the forewings are extremely variable in their degree of clarity. Some ♀♀ are obscurely clouded with smoky-grey, the markings very obscure. The fringes are yellowish, sometimes darkened by green. The hindwings are variable, whitish tinged yellowish in the ♂, grey or brownish in the ♀ (although these can be coloured as in the ♂), both sexes sometimes with quite a distinct submarginal line and usually showing a dark discal spot.

The angulated band, between the posterior edge of the central fascia and the whitish or ochreous subterminal line, has pinkish lunules or shades preceding the varying blackish or rufous wedges; this band is usually of a slightly paler tonal value than the rest of the forewings, although its constituent colours may vary as the forewings.

Some examples are more or less of the typical form except that the ground colour is dark olive-green with more traces of greyish on the forewings and both the reniform and the orbicular are conspicuous whitish, the centre of the reniform also being wholly whitish with little or no trace of pink or ochreous. I would call such examples var. **albi-punctata** nov. In the typical form the stigmata are not conspicuous as a rule and they are generally well broken up by and mixed with pink and ochreous with dark or mixed centres, and therefore such examples with clear stigmata are quite distinct.

Very rarely pale bluish tinges are noticeable, particularly near the hind margin of the forewings, and one specimen I bred has this suffusion together with a small pale blue centre to the reniform stigma.

Specimens as this one, with the blue extending to the reniform, I would call var. **coerulescens** nov.

The angulated band before the subterminal band is sometimes sprinkled with whitish and pale fuscous, the pink suppressed and the dark wedges much reduced; this gives the effect of a prominent, pale, fuscous band, since the subterminal line is followed by the darker green shade. Such specimens, with a prominent paler band of this nature, I would call var. **pallido-fasciata** nov.

One ♀, of rather unicolorous dark tone, with most markings subdued, has a distinct wavy black line running between the stigmata and extending in a curve from the costa to the centre of the inner margin. This well-defined black line contrasts strongly with the indistinctness of the other markings, and I would call it var. **nigro-lineata** nov.

There is a fairly constant pale form that occurs in some localities, often replacing the typical form altogether, though none were found at Mawgan Porth in North Cornwall, where most of my specimens come from. This is var. *viridicincta*, Frr., and is a pale greenish-grey form. The central fascia is pale greenish-grey and so is the outer margin. The basal and subterminal areas are paler, greenish and whitish, so that the insect has a somewhat banded appearance, and the dark markings are more conspicuous on the lighter ground. The hindwings are also paler. No pinkish tinges are present but traces of pale ochreous are present instead.

I have two examples, a ♂ and a ♀, that form an exact intermediate between the typical form and var. *viridicincta*, Frr. There is the slightest trace of pink, mixed ochreous, the markings are distinct and the green is mixed with greyish, being lighter than typical forms but greener than var. *viridicincta*, Frr. I would call such specimens var. **intermedia** nov.

There is a still paler form than var. *viridicincta*, this is var. *tephra*, H.G., and is pale grey with the green tints missing as well as the pink. This does not appear to have been found in Britain.

A blackish form with the markings on the forewings distinct is var. *aetnea*, Turati. Recorded from Sicily but not apparently from Britain yet. I have one dark example from Cornwall. It is certainly blackish but the markings, though clear, are not "very distinct." It has noticeable ochreous specklings (not dusting, see later note) and is probably close to var. *aetnea*.

Four examples, 2 ♂♂ and 2 ♀♀, have the ground colour olive-green (not deep olive-green as typical forms) but they are much suffused with blackish, the dark markings are not clear, the ochreous stigmata are not distinct and the whole of the forewings are well dusted with yellowish (finely dusted, not speckled as form near var. *aetnea* mentioned above). The reniform, itself not very well defined, is the most conspicuous marking and the general appearance is mixed blackish and yellowish with no definite markings. The form may be known as var. **evalensis** nov.

Another dark ♀ example has a slight purple tinge around the central fascia. The whole of the forewing has a strong suffusion of dark vinous grey, particularly the central fascia and the green colour is almost obliterated. The purplish tinge appears on the hind margin, presumably caused by the vinous grey mixing with some of the bluish

scales described in var. *coerulescens*. There are slight traces of ochreous and greenish near the base. The centre of the indistinct reniform is ochreous, surrounded by whitish and pale grey. The markings are very indistinct and the subterminal line is not so waved as usual. (Var. *evalensis* has yellow dusting and no purplish.) Another ♀ belongs to this form but the purplish is a little less pronounced. Both have a dingy, obscure appearance. The form may be known as var. **atlantica** nov.

A number of specimens are of a paler form which may be called var. **ochracea** nov. The darker markings on this variety, though in most cases reasonably distinct, are not so dark and heavy as in the type form. Neither is the ground colour so dark as the type, it appearing as olive-green, not deep olive-green as the type, and is a distinctive colour from it. This olive-green ground is shot and dusted with ochreous-yellow, sometimes quite pronounced, especially in the basal area of the forewings. Red or pink suffusion is always present in greater or lesser degree, sometimes quite strongly. The stigmata are usually wholly, but always in part suffused pink and yellowish and are not usually very distinct. One ♀ has the hindwings whitish as the ♂. The definite olive-green colour, with patches of yellowish and pink and the slightly lighter general markings give this variety a much lighter green appearance and at once distinguished it from the typical form which appears more drab and uninteresting beside it.

I have nine ♂♂ which have the general appearance of being a paler, slightly marked, distinctly yellow-green form, quite distinct from var. *ochracea* above (which is the intermediate between this yellowish form and the typical form). The form may be known as var. **flavescens** nov. In this variety the ground colour is an even lighter olive green than in var. *ochracea*, nor are the dusky markings so heavy or so dark as in that variety, many of the markings indeed disappearing altogether. All possess slight suffusions of pink but it is not strong in colour nor pronounced in effect. The most distinct feature, however, is a considerable increase in the yellow suffusion over the whole insect. This suffusion is so strong as to make the insects look a very distinct yellow green, rather than the olive colour of var. *ochracea*. This yellowing extends in varying degrees to the thorax, body and hindwings also. The stigmata are almost wholly yellowish but with pink present also.

Rarely there appears a small square ochreous spot on the tip of the apex of the forewings. This is noticed in the typical form and var. *flavescens*.

I have 5 ♂♂ and 3 ♀♀ which in general colouring are as the typical form except for a complete absence of any pink suffusion or scales. The typical form clearly should have this red or pinkish coloration and to be typical any specimen must possess this pink suffusion in addition to the other characteristics. The ochreous scaling is not pronounced. Their general aspect is like the typical form, but lacking the pink coloration makes them look more drab and dull. This form may be known as var. **simulans** nov.

In var. *flavescens* the stigmata are ochreous, with pink mixed; in var. *simulans* the stigmata are largely whitish, with only traces of ochreous. In var. *ochracea* the stigmata are described as usually wholly but always in part suffused pinkish and ochreous; the ochreous colour

predominates. One example of var. *ochracea* has the stigmata, particularly the reniform, largely prominent whitish and distinct. I would call it var. **albin-ochracea** nov. It is a parallel variety to var. *albipunctata*, except that the orbicular is not quite as distinct as in that variety.

The most handsome form is one in which all the markings are clear, there are suffusions of pink, ochreous, blue-green and warm, vinous blackish, all with a strong sprinkling of clear snow-white, giving a dappled appearance not unlike that possessed by *Antitype flavicincta*, F.

The white spots on the costa are clear white and the line before the orbicular and the one after the reniform are clear white, blackish edged. This richly coloured form is by far the most beautiful one, easily surpassing the typical form. I would include in this form specimens having the two lines edging the central fascia either wholly or largely clear white, with snow-white speckling on the costal and hind marginal areas particularly, and richly coloured and variegated. It may be known as var. **splendida** nov.

I should expect to find further variation in this species in the direction of considerable extension of the pink or red suffusion up to an extreme degree. Mr H. J. Turner (*in litt.*) says "a specimen has been taken of a clear purplish-grey form"—presumably caused by a general mixture of the pink with the blue-green colour sometimes found. I would also have expected melanic tendencies to be more pronounced than appears to be the case in Britain.

SUMMARY.

1. Type.—*E. lichenea*, Hbn. Dark green, blackish marked, suffused pinkish and ochreous.
2. Typical form.—Var. *albipunctata*. Stigmata conspicuous whitish.
 Var. *pallido-fasciata*. Pale, wide subterminal band.
 Var. *nigro-lineata*. Wavy, curved, black transverse line across centre of forewings between stigmata.
 Var. *simulans*. No pink.
 Var. *splendida*. Very richly coloured, lined and speckled clear white.
3. Yellower-green.—Var. *ochracea*. Olive-green ground suffused yellowish, lighter markings.
 Var. *albin-ochracea*. As var. *ochracea* but stigmata prominent whitish.
4. Strong Yellow-green.—Var. *flavescens*. Yellow-green, markings very light.
5. Bluish Tinged.—Var. *coerulescens*. Blue tinged, blue centre to reniform.
6. Greyish.—Var. *tephra*, H.G. Pale grey.
 Var. *viridicincta*, Frr. Pale greenish-grey, no pink.
 Var. *intermedia*. Pale green, mixed grey, some pink.
7. Blackish.—Var. *aetnea*, Turati. Blackish, markings distinct.
 Var. *evalensis*. Indistinct, suffused blackish and dusted yellowish.
 Var. *atlantica*. Suffused dark vinous grey, purplish around hind margin,

TYPES AND LOCALITIES.

- Typical form.—7 ♂♂, bred from larvae, P.S.S., Mawgan Porth, N. Cornwall, 1931-32.
- 13 ♀♀, bred P.S.S., Mawgan Porth, 1931-32: 1 ♀, "Torquay, 15/7/02, bred Smallpiece": 1 ♀, "Penmaenmawr, Tait, bred 1904."
- Var. *albipunctata*.—Type. ♀, Mawgan Porth, bred P.S.S., Oct. 1932.
3 ♀♀, Mawgan Porth, bred P.S.S., 1931-32: 1 ♂, "Eastbourne, Sussex, 29/9/33, A.L.R."
- Var. *pallido-fasciata*.—Type. ♂, Mawgan Porth, bred P.S.S., 26/9/32.
- Var. *nigro-lineata*.—Type. ♀, Mawgan Porth, bred P.S.S., 9/10/32.
- Var. *simulans*.—Type. ♂, Mawgan Porth, bred P.S.S., 26/9/32.
2 ♂♂, Mawgan Porth, bred P.S.S., 1932: 2 ♂♂, "St Annes-on-Sea, bred Sept. 1911, W. Yates": 2 ♀♀, Mawgan Porth, bred P.S.S., 1932: 1 ♀, "N. Wales, bred 1907, B. H. Crabtree."
- Var. *splendida*.—Type. ♂, "Penmaenmawr, Tait, bred Sept. 1906."
♂, "Eastbourne, Sussex, 19/9/33, A.L.R."
- Var. *ochracea*.—Type. ♂, Mawgan Porth, bred P.S.S., 3/10/31.
3 ♂♂, Mawgan Porth, bred P.S.S., 1932: 1 ♂, "Plymouth, 1895, Mathews": 1 ♀, "Torquay, bred Sept. 1904, W. Crocker."
- Var. *albin-ochracea*.—Type. ♂, Mawgan Porth, bred P.S.S., 9/10/32.
- Var. *flavescens*.—Type. ♂, Mawgan Porth, bred P.S.S., 25/9/32: 1 ♂ (crippled), Mawgan Porth, bred P.S.S., 1931: 5 ♂♂, Torquay: 1 ♂, E. Cornwall: 1 ♂, S. Devon.
- Var. *coerulescens*.—Type. ♂, Mawgan Porth, bred P.S.S., 27/9/32.
- Var. *viridicincta*, Frr.—1 ♀, "Swanage, Dorset, 1895": 1 ♂, "Portland, bred 1901, J. T. Hyde."
- Var. *intermedia*.—Type. ♂, "Deal, 26/9/19/9":
1 ♀, "Bude, bred 19/9/07."
- Var. *evalensis*.—Type. ♂, Mawgan Porth, bred P.S.S., Oct. 1932:
also 1 ♂ and 2 ♀♀.
- Var. *atlantica*.—Type. ♀, Mawgan Porth, bred P.S.S., 8/10/32: 1 ♀ as first but 22/9/32.
- Var. *trans ad aetnea*, Trti.—♂, Mawgan Porth, bred P.S.S., 9/10/32.

All the above specimens are in my collection. The above details will show that the male appears to be more subject to variation than the female.

FIELD NOTES FROM THE BOSPHORUS.

JANUARY-JULY, 1941.

By MALCOLM BURR, D.Sc., F.R.E.S.

During the winter months the chief interest for the naturalist on the Bosphorus is in the behaviour of four species of gulls, and in particulars of the cormorants, like hundreds of periscopic pterodactyls, and the great crested grebes. These supplement the perennial interest of the *yellowan*, "Souls of the Damned," as the Turks call the shearwaters that perpetually skim the water, flying in long drawn-out flocks